EXHIBIT 4

Clickstream System - Proof Of Concept (POC) Project

Project Plan
for the BellSouth Interactive Video Services Network Trial

*BELL*SOUTH Interactive Media Services

This document presents a project plan with individual work items, rough man-hour estimates, and durations.

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Revision History:

1.00	6/04/96	11:14 pm EST	TG	Initial release of plan.

1.   Overview

The Clickstream Proof Of Concept (POC) Project is being undertaken by BellSouth as a precursor to a larger more complex development effort to put in place a comprehensive Clickstream and Marketing and Information System (MKIS). This system will allow for detailed study of subscriber behavior and subscriber usage of both broadcast and interactive services. The Clickstream system is being designed and implemented for the BellSouth Residential Broadband Trial taking place in Chamblee ,Georgia. The decision to build the Clickstream / MKIS system will be based on the outcome of the POC effort.

The intention of the POC project is, fundamentally, to ensure that the Clickstream system does not and will not adversely impact broadcast or interactive system stability. This should be tested at a variety of load conditions and circumstances. To accomplish this overall task it is desired to break the POC project into two pieces.
1) A set of network, backend, and Set-Top "tools" will be developed to allow the Clickstream system to work. The POC development of these tools will utilize existing Clickstream system design specifications when applicable, but the POC implementation will not be spending time implementing what could be viewed as "bells and whistles" features of the system in the current outstanding designs. The emphasis will be on providing just enough of an infrastructure to accomplish the intention of the project.
2) A series of tests will be run. Data and statistics will be accumulated to build a knowledge base on network stability and performance. The test procedures will place the test system into various conditions and system states and will use the Clickstream tools to approximate a real load on the Set-Tops, signaling, CMC, and backend systems . The result of these tests will be the data needed to make the decisions on further development.

In the event that the decision is made to pursue a full Clickstream system development, the large majority of development done during the POC project will form a basis for further development of the deployable system.
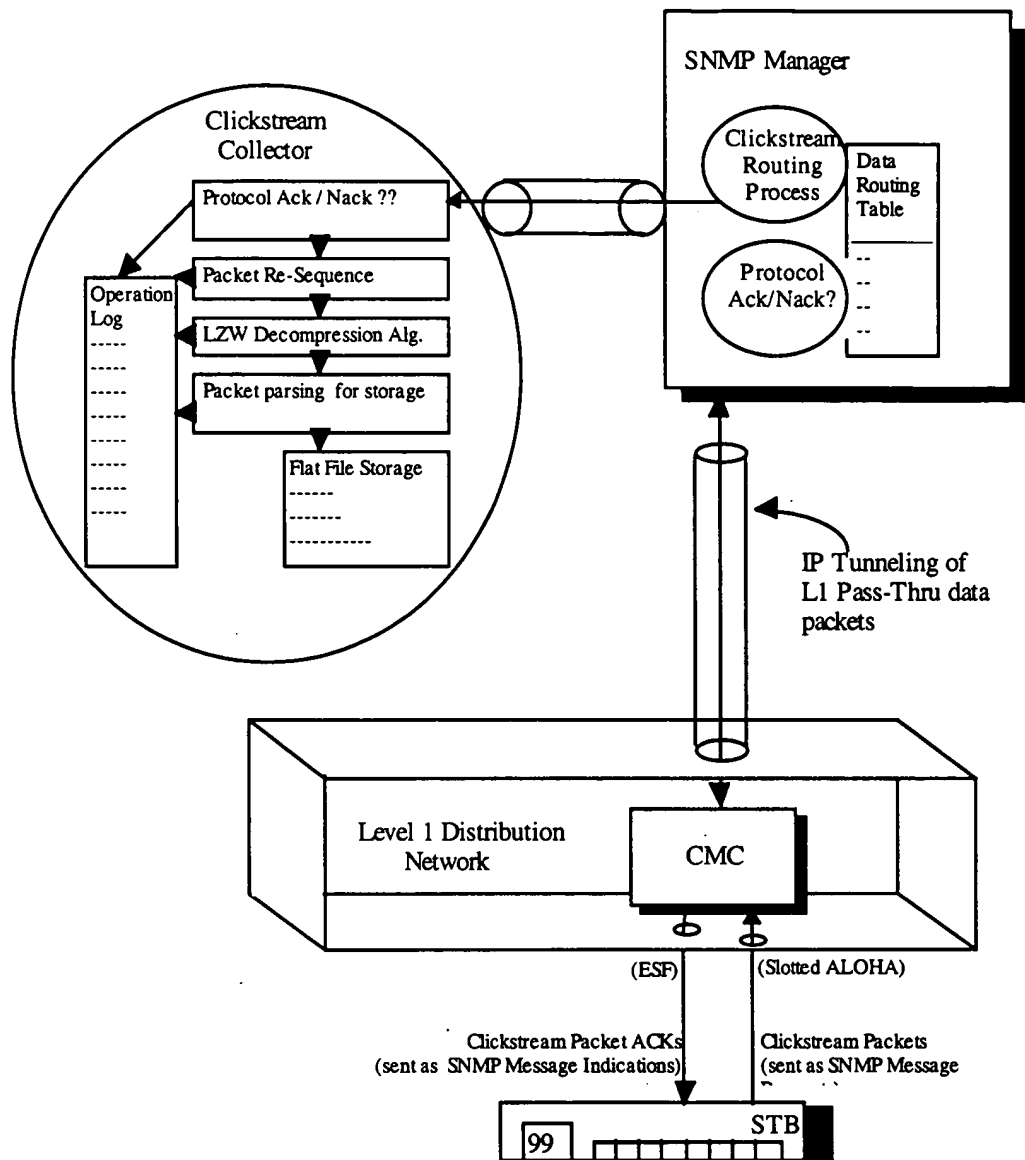
Figure 1: Clickstream Upload Data Flow Elements

2. Development Tasks

2.1. Design

Journaling Decisions Design.   Effort to determine and document the behavior that will cause Events to be buffered, and what will not. This design will be driven by the proposed MKIS reports, i.e. output driven. Advertising personnel will be required during this initial phase.

Clickstream Upload Application Level Protocol. A simple applications level protocol must be hashed out and documented to provide the system with an acceptable level of confirmed data transmission and reception.

2.2. Clickstream POC Tools

2.2.1. STB Based Development

Clickstream Kernel. This work was begun last year and never completed. It must be updated to changes in the PowerTV API set (there have been many), and completed. This may or may not include the compression algorithm, given time constraints on the POC project.

Cable Application calls to Clickstream.   The cable application must be modified to format and send data to the Clickstream Kernel in the form of Clickstream Events. There must be levels of verbosity defined and implemented. This will follow the short journaling decisions design described above.

Navigator calls to Clickstream.   The navigator will be sending information to the Clickstream Kernel on activities within the interactive services. A number of these calls have already been placed in the Navigator by Sybase based on preliminary designs. It is unclear if these calls have persisted in the code to the present releases since the code has been taken over by BellSouth development.

SNMP Client MIB. The plan is to leverage off of the work done on SNMP system management as much as possible. The SNMP Client code will be in place to receive Level 1 Pass-Through transactions from service providers and parse information based on the MIB defined in the transaction. The POC project will define a new MIB data structure based primarily on the "Clickstream Control Transaction Syntax" previously designed and specified. Processing of this MIB must be added to the SNMP Client.

SNMP Client Interface to Clickstream Kernel. The SNMP Client must also be modified to send any control data to the Clickstream Kernel. It must identify that the Clickstream Kernel is resident within the STB, find it's event queue, and send the data over to it.

2.2.2. Network Elements Development

Transaction Analysis.   Modifications to existing transaction monitors will be made for testing and debug purposes.

2.2.3. Backend Systems Development

SNMP Manager Modifications.   The SNMP Manager will buffer and route received Clickstream data packets to the Clickstream Collector for storage.

Clickstream Collector Development.   The Clickstream Collector will receive Clickstream data packets from the SNMP manager, may handle the application level protocol of transmitting Acks / Nacks with appropriate timing, and will reconstruct individual Clickstream Buffers and store them.

Clickstream Control Transaction Generation.   The control and scheduling of data uploads is sent to the STB in the form of a special SNMP MIB. This backend tool will accept simple user input, and generate the appropriate data to be sent to the SNMP Manager for transmission as an SNMP packet.

3.   Testing Tasks and Analysis

Set-Top Stand Alone Testing.   Measuring impacts to STB latencies in both Broadcast and Interactive services. Measuring buffer sizes.

Network Impacts.   Measuring anticipated and worst case upload data rates on the network. Throughput bottlenecks such as CMC, Slotted-Aloha demods, etc. will be tested and characterized.   Average data packet loss statistics can be measured and calculated.

Backend Systems Impacts. Measuring response times, aggregate data storage needs, impact to Interactive systems session set-up and tear-downs.

4.   Project Work Items / Rough Effort Levels

#	Work Item	Estimated Effort (Man-days)	Personnel Allocation	Duration	Dependencies
Design					
0	Journaling Decisions Design	2 day	Ted		-
0	Clickstream Upload Application Level Protocol.	2 day	Ted		-
STB Based Development					
1	Clickstream Kernel	18 to 20 days	Mel		#0
2	Cable Application calls to Clickstream	15 to 20 days	Ted		#0
3	Navigator calls to Clickstream	3 to 10 days **	Nav Team?		#0
4	SNMP Client MIB	2 day	Bill		#0
5	SNMP Client interface to Clickstream	1 day	Bill		#4
Network Elements Development					
6	Transaction Analysis	5 - 10 days	Person A		#4 & #1
Backend Systems Development					
7	SNMP Manager Modifications	5 days	Person B		0
8	Clickstream Collector Development	25 days	Person A&B		#7
9	Clickstream Control Transaction Generation	15 days	Person A&B		#7
Integration					
10	Testing System Components	5 days x 4 personnel	All	~ 5 days	#1 to 9
Testing Tasks					
11	Set-Top Stand Alone Testing	?			#10
12	Network Impacts	?			#10
13	Backend Systems Impacts	?			#10

** Depends on Navigator team info.

Development Effort Estimate = 768 to 960 Man-hours.